AMENDMENTS TO THE SPECIFICATION

On page 8, please amend the paragraph beginning with "An objective according to the invention ...." as follows:

-- ~~An~~ A projection objective ~~according to the invention~~ that meets the foregoing ~~objective~~ object of the invention comprises a first partial objective and a second partial objective which are arranged along an optical axis.--

Please amend the paragraph on pages 10-12 beginning with "The intermediate image is projected ...." as follows:

--The intermediate image is projected onto a second field plane by means of the second partial objective. This has the purpose of providing between the optical components of the second partial objective and the second field plane a sufficiently large free optical working distance, which does not exist between the intermediate image and the optical components of the first partial objective. The second partial objective has a third concave mirror with a third central mirror aperture and a fourth concave mirror with a fourth central mirror aperture, which are arranged facing one another. In this case, light rays first pass through the fourth mirror aperture, are reflected at the third mirror, are subsequently reflected at the fourth mirror, and then pass through the third mirror aperture. In order to keep the aperture obscuration as low as possible, the third mirror is arranged as close to the second field plane as is allowed by the free optical working distance. In addition, the third mirror is a concave mirror with a relatively large diameter, and thus the

ratio of the diameter of the mirror aperture to the diameter of the mirror assumes smaller values. The axial distance between the third mirror and the second ~~fourth~~ field plane is denoted below by Z_{M3-IM}. The distance Z_{M3-IM} advantageously has a minimum value which is equal to the sum of the minimum substrate thickness of the third mirror and a minimum free optical working distance. The minimum substrate thickness is specified on the optical axis between the surface vertex and the rear surface even if, because of the central mirror aperture, the mirror has no substrate material there. The minimum substrate thickness is 3% of the diameter of the mirror. Since it is a concave mirror, the physically present substrate thickness of the third mirror is greater. If the aperture obscuration so permits, it is advantageous when the minimum substrate thickness on the axis is 5% or even 10% of the diameter of a concave mirror with central mirror aperture. The minimum free optical working distance between the rear surface of the third mirror and the second field plane is 5.0 mm. This free optical working distance ensures the positioning of an object in the second field plane. The maximum value of the distance Z_{M3-IM} is primarily a function of the tolerable aperture obscuration and secondly of the numerical aperture NA in the second field plane. It is advantageous for a low aperture obscuration when the diameter of the third mirror aperture is smaller than 50% of the diameter DuM3 of the third mirror. Since the diameter of the third mirror aperture increases linearly with the tangent of the arcsine of the numerical aperture in the second field plane, and with the distance of the third mirror from the field plane, the maximum value of the distance Z_{M3-IM} is given by the following relationship:--

On page 12, before the paragraph beginning with "Only light rays with aperture angles starting from ...", please insert the subtitle:

--DETAILED CONCEPTUAL DESCRIPTION OF PREFERRED EMBODIMENTS--

On page 27, please amend the paragraph beginning with "The first partial objective 3 projects ...." as follows:

--The first partial objective 3 projects the first field plane 7 with an imaging ratio of 74:1 onto the intermediate image 11. It comprises the convex ~~concave~~ mirror 13 with the central mirror aperture 15, and the concave mirror 17 with the central mirror aperture 19. The concave mirror 17 is designed in such a way that the intermediate image 11 is formed in the vicinity of the convex mirror 13. The axial distance between the mirror 17 and the paraxial position of the intermediate image 11 is equal to the axial distance between the mirror 17 and the mirror 13 and is 68.8 mm. The ratio of the diameter of the concave mirror 17 to the diameter of the convex mirror 13 is 3.0:1. The free optical working distance between the first field plane 7 and the mirror 17 is 1580 mm, assuming a substrate thickness of 35.2 mm on the optical axis for the mirror 17.--

On page 29, please amend the paragraph beginning with "Located between the concave mirror 21 ...." as follows:

--Located between the concave mirror 21 and the concave mirror 25 is the aperture plane 29 and the light blocking device 31, which is designed as a ray trap. The diameter of the light blocking device 31 is fixed in such a way that the ray pencils occurring

in the second field plane 9 have an aperture obscuration almost independent of field height. If a mechanical shutter diaphragm with variable diameter is arranged in the aperture plane 29, the shutter blades can move on a curved surface in accordance with the curvature of the aperture plane. It is also possible to provide a plurality of flat mechanical diaphragms with variable diameter which can be inserted if required axially offset. The marginal rays 37 and 39, which emanate from the two field points 33 and 35 in the first field plane 7, go through the upper and lower margins of the aperture plane 29 ~~39~~. The field point 33 is located on the optical axis OA, and the field point 35 is located on the upper margin of the field at a distance of 100 mm from the optical axis OA. Further illustrated for the field point 33 are the rays 41 which are just no longer vignetted by the mirror apertures. In the second field plane 9, they have an aperture angle of 18.4°, and so the aperture obscuration is 0.45. The ratio of the numerical aperture in the second field plane to the aperture obscuration is therefore 1.56. The mirror aperture 19 of the concave mirror 17 acts in a limiting fashion for the aperture obscuration in the first exemplary embodiment--.

On page 33, please amend the paragraph beginning with “In order to keep the aperture ....” as follows:

--In order to keep the aperture obscuration as low as possible, the concave mirrors 249 and 225 are arranged in the vicinity of the intermediate image 211, or of the further intermediate image 243. The axial distance between the concave mirror 249 and the intermediate image 211 is 50.0 mm, and likewise 50.0 mm between the concave mirror

225 and the further intermediate image 243. These axial distances also correspond in each case to the axial distances in relation to the mirror 213, or to the mirror 245. The axial distances are selected to be large enough to accommodate the adjacent mirrors 213 and 249, or 245 and 225, with an axial distance of the mirror rear surfaces, taking account of the respective substrate thickness. The ~~the~~ substrate of mirror 245 does not have a plane rear surface. In order for the rays passing through the mirror aperture 247 not to be vignetted at the substrate, the rear surface has a frustoconical depression surrounding the central mirror aperture 247.--

Please amend the paragraph on pages 40-42 beginning with "A lithographic projection exposure apparatus...." as follows::

--A lithographic projection exposure apparatus 453 for EUV lithography is illustrated schematically in Figure 4. A laser-induced plasma source 459 serves as light source. In this case, a Xenon target, for example, is excited by means of a pump laser 457 to emit EUV radiation. The illuminating system 455 comprises the collector mirror 461, the homogenizing and field-forming unit 463 and the field mirror 465. Such illuminating systems are described, for example, in US 6,198,793 (DE 199 03 807), which is owned by the same assignee as the present invention and whose content is incorporated herein by reference. The illuminating system 455 illuminates a restricted field on the micromirror array 467, which is arranged on the holding and positioning unit 469. The micromirror array 467 has 1000 × 1000 separately controllable mirrors of size 10 μm × 10 μm. Taking account of a minimum distance of 0.5 μm between the micromirrors, the illuminating

system 455 should illuminate a square field of size 10.5 mm × 10.5 mm. The micromirror array 467 is located in the object plane of a projection objective 401, which projects the illuminated field onto a photosensitive substrate 471. The photosensitive substrate 471 is arranged on the holding and positioning unit 473, which also permits scanning of the micromirror array 467. One of the exemplary embodiments illustrated in Figures 1 to 3 can be used as projection objective 401. The micromirror array 467 is arranged in the first field plane, and the photosensitive substrate 471 in the second field plane. In order for the field mirror 465 ~~565~~ not to vignette the projecting beam path, the field mirror 465 must be arranged at a sufficiently large distance from the micromirror array 467. On the other hand, this requires the illuminated field to be arranged not centered relative to the optical axis OA, but outside the optical axis. Since, however, the object fields of the exemplary embodiments shown have a diameter of 200 mm, the illuminated field can be arranged, for example, at a distance of 70 mm from the optical axis OA. The individual micromirrors of the micromirror array 467 are projected onto the photosensitive substrate 471 with an imaging ratio of 100:1, and so the images of the micromirrors have a size of 100 nm. Consequently, it is possible to produce structures with a resolution of approximately 100 nm on an image field of size 105 µm × 105 µm, since the projection of the projection objective 401 is diffraction limited. By stepwise displacement and/or scanning of the photosensitive substrate 471 by means of the holding and positioning unit 473, it is also possible to expose fields with dimensions of several millimetres. The lithographic projection exposure apparatus 453 also has the ray trap 475. This absorbs the light rays of those ray pencils which are not aimed into the entrance pupil of the projection objective

401 by the micromirrors. The computer and control unit 477 is used to control the pump laser 457, the illuminating system 455, for the purpose of varying the pupil illumination, the controllable micromirror array 467 and the holding and positioning units 473 and 469.--